

What is claimed is:

1 1. A reception display apparatus for receiving data blocks which  
2 are repeatedly transmitted from a broadcasting station at regular  
3 intervals and displaying a screen image based on the received data  
4 blocks, each of the data blocks including a data section, and data  
5 to be displayed as the screen image being divided into a plurality  
6 of data sections, the reception display apparatus comprising:

7 a reception means for receiving the data blocks;

8 a data judgement means for judging whether the data  
9 section in each received data block is normal;

10 a storage means for storing every data section judged  
11 as normal by the data judgement means without storing data  
12 sections judged as abnormal;

13 a condition judgement means for judging, before all data  
14 sections to be displayed as the screen image are stored in the  
15 storage means, whether a condition for displaying the screen image  
16 is satisfied; and

17 a display means for displaying, when the condition  
18 judgement means judges that the condition is satisfied, a part of  
19 the screen image using data sections currently stored in the  
20 storage means.

1 2. The reception display apparatus of Claim 1, wherein

2 the data judgement means generates, when having judged  
3 that a data section is not normal, information indicating that the

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4 data section is abnormal, and stores the information into the  
5 storage means, and

6 the display means displays either a blank or a notice  
7 indicating abnormality of the data section, at a position in the  
8 screen image where the data section indicated as abnormal by the  
9 information stored in the storage means should be displayed.

1 3. The reception display apparatus of Claim 2, wherein

2 the screen image is either displayed at once on a screen  
3 or viewed by scrolling by a user.

1 4. The reception display apparatus of Claim 3, wherein

2 the screen image corresponds to one of (1) a file  
3 including information used for referring to another file and (2)  
4 a Hyper Text file, and

5 the display means displays a part of the screen image  
6 using data sections of one of the file including information used  
7 for referring to another file and the Hyper Text file currently  
8 stored in the storage means.

1 5. The reception display apparatus of Claim 1, wherein

2 the condition for displaying the screen image used in  
3 the judgement by the condition judgement means is that either (1)  
4 an instruction to display has been received from a user, or (2)  
5 the reception means has received data blocks including all data



24 judges that all pieces of protocol information for the screen  
25 image have been stored in the storage means, displaying a part of  
26 the screen image using the data sections currently stored in the  
27 storage means and all pieces of protocol information stored in the  
28 storage means.

1 7. The reception display apparatus of Claim 6, wherein  
2 the data judgement means judges whether the protocol  
3 information in each received data block is normal and then judges  
4 for each data block that includes protocol information judged as  
5 normal whether the data section in the data block is normal, and  
6 the storage means stores every piece of protocol  
7 information judged as normal.

1 8. The reception display apparatus of Claim 6, wherein  
2 when a data section is not stored in the storage means  
3 and a piece of protocol information corresponding to the data  
4 section is stored in the storage means, the display means displays  
5 either a blank or a notice indicating abnormality of the data  
6 section, at a position in the screen image which is indicated by  
7 the piece of protocol information.

1 9. The reception display apparatus of Claim 6, wherein  
2 each piece of protocol information indicates a display  
3 area in the screen image corresponding to a data section included

4 in the same data block, and

5           the display means recognizes a display area on the  
6 screen image corresponding to a data section not stored in the  
7 storage means as a non-display area, and displays in the non-  
8 display area, which is indicated by a piece of protocol  
9 information corresponding to the data section not stored in the  
10 storage means, either a blank or information indicating that a  
11 data section has not been received normally.

1 10. The reception display apparatus of Claim 6, wherein

2           each piece of protocol information further indicates a  
3   data size of a data section included in the same data block, and  
4           the display means generates a non-display area at a  
5   position in the screen image where a data section not stored in  
6   the storage means should be displayed, the non-display area having  
7   a size equivalent to a data size of the data section not stored in  
8   the storage means, and the data size and the position being  
9   indicated by a piece of protocol information stored in the storage  
10  means and corresponding to the data section not stored in the  
11  storage means.

1 11. The reception display apparatus of Claim 6, wherein

2           the received data blocks belong to a lowest layer of a  
3 plurality of layers, the data blocks in the lowest layer being  
4 generated through the plurality of layers from the original data



30 condition judgement means judges, before all data sections  
31 constituting the original data in the highest layer are  
32 reconstructed, that all pieces of protocol information necessary  
33 for reconstructing the original data in the highest layer have  
34 been prepared, and

35 at this point of time, the display means displays a part  
36 of the screen image using the data sections in the second-highest  
37 layer having been reconstructed so far and the all pieces of  
38 protocol information in the second-highest layer necessary for  
39 reconstructing the original data in the highest layer.

1 12. The reception display apparatus of Claim 6, wherein

2 the screen image is either displayed at once on a screen  
3 or viewed by scrolling by a user.

1 13. The reception display apparatus of Claim 11, wherein

2 the screen image corresponds to one of (1) a file  
3 including information used for referring to another file and (2)  
4 a Hyper Text file, and

5 the display means displays a part of the screen image  
6 using data sections of one of the file including information used  
7 for referring to another file and the Hyper Text file currently  
8 stored in the storage means.

1 14. A reception display method for receiving data blocks which are





8 stored information should be displayed.

1 16. A reception display method for receiving data blocks which  
2 are repeatedly transmitted from a broadcasting station at regular  
3 intervals and displaying a screen image based on the received data  
4 blocks, each of the data blocks including (1) a data section  
5 constituting original data to be displayed as the screen image and  
6 (2) protocol information indicating a position of the data section  
7 in the original data, the original data being divided into a  
8 plurality of data sections, the reception display method  
9 comprising:

10 a reception step for receiving the data blocks;

11 a data judgement step for judging whether the data  
12 section in each received data block is normal;

13 a storage step for storing (1) the protocol information  
14 included in each data block received in the reception step and (2)  
15 data sections judged as normal in the data judgement step, the  
16 storage step not storing data sections judged as abnormal, and  
17 each piece of stored protocol information showing correspondence  
18 to a data section from a same data block;

19 a condition judgement step for judging, before all data  
20 sections to be displayed as the screen image are stored, whether  
21 all pieces of protocol information for the screen image have been  
22 stored; and

23 a display step for, when the condition judgement step

24 judges that all pieces of protocol information for the screen  
25 image have been stored, displaying a part of the screen image  
26 using the currently stored data sections and all pieces of stored  
27 protocol information.

1 17. A computer-readable record medium recording a reception  
2 display program for receiving data blocks which are repeatedly  
3 transmitted from a broadcasting station at regular intervals and  
4 displaying a screen image based on the received data blocks, each  
5 of the data blocks including a data section, and data to be  
6 displayed as the screen image being divided into a plurality of  
7 data sections, the reception display program causing a computer to  
8 execute:

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9         a reception step for receiving the data blocks;

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10         a data judgement step for judging whether the data
11 section in each received data block is normal;

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12           a storage step for storing every data section judged as  
13 normal in the data judgement step without storing data sections  
14 judged as abnormal;

15           a condition judgement step for judging, before all data  
16 sections to be displayed as the screen image are stored, whether  
17 a condition for displaying the screen image is satisfied; and

18           a display step for, when the condition judgement step  
19 judges that the condition is satisfied, displaying a part of the  
20 screen image using currently stored data sections.

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1 18. The computer-readable record medium of Claim 17, wherein  
2 the data judgement step generates, when having judged  
3 that a data section is not normal, information indicating that the  
4 data section is abnormal, and stores the information, and  
5 the display step displays either a blank or a notice  
6 indicating abnormality of the data section, at a position in the  
7 screen image where the data section indicated as abnormal by the  
8 stored information should be displayed.

1 19. A computer-readable record medium recording a reception  
2 display program for receiving data blocks which are repeatedly  
3 transmitted from a broadcasting station at regular intervals and  
4 displaying a screen image based on the received data blocks, each  
5 of the data blocks including (1) a data section constituting  
6 original data to be displayed as the screen image and (2) protocol  
7 information indicating a position of the data section in the  
8 original data, the original data being divided into a plurality of  
9 data sections, the reception display program causing a computer to  
10 execute:

11 a reception step for receiving the data blocks;  
12 a data judgement step for judging whether the data  
13 section in each received data block is normal;  
14 a storage step for storing (1) the protocol information  
15 included in each data block received in the reception step and (2)

